BREA WILLIS

# COMPOUNDING THREATS

## THE GEOPOLITICS OF CLIMATE CHANGE

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Brea Willis

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## Prologue

For decades, the discourse on climate change has been framed as an environmental concern, a matter of conservation, emissions targets, and scientific modeling. While not incorrect, this framing is dangerously incomplete. To understand the full gravity of our predicament, we must shift our lens, **climate change is the paramount "threat multiplier" of our age, fundamentally redefining the landscape of national and global security.** This book moves beyond polar bears and melting ice to examine how rising temperatures are actively dismantling stability, amplifying existing fractures, and creating new, unanticipated vectors of conflict.

The pathways through which climate change drives instability are both direct and insidiously indirect. Consider **resource wars**. Shared rivers like the Nile, Indus, and Mekong are not just water sources; they

are geopolitical flashpoints. As precipitation patterns shift and glacial reserves dwindle, upstream dams and diversion projects become existential threats to downstream nations. What was once a technical dispute over irrigation becomes a casus belli, turning hydrological engineering into a tool of state power and coercion.

Perhaps the most profound human crisis will be driven by **climate migration**. Unlike political refugees fleeing a specific regime, climate migrants are pushed by an unfolding, often irreversible, environmental collapse, whether the slow creep of desertification or the sudden obliteration of a homeland by a supercharged hurricane. These mass displacements will strain receiving regions, overwhelm social services, and inflame ethnic and political tensions. Borders, both internal and international, will become zones of conflict, not between armies, but between desperate populations and fortified states.

Climate change also physically redraws the geopolitical map. Nowhere is this more stark than in the **opening of the Arctic**. As sea ice retreats, it unveils new shipping lanes that promise commercial fortune and unlocks access to vast undersea resources. This has triggered a quiet but intense scramble among

Arctic powers, Russia, the United States, Canada, and Nordic nations, involving renewed military posturing, sovereignty claims and a race for infrastructural dominance. A region once defined by its impassable isolation is becoming a new cockpit for great-power competition.

In recognition of these threats, **military institutions worldwide are undergoing a profound adaptation**. The U.S. Department of Defense, for instance, now consistently identifies climate change as a destabilizing force, integrating it into strategic planning. This involves hardening coastal bases against sea-level rise, preparing for more frequent disaster-response missions, and recalculating threat assessments from the Sahel to the South China Sea. The military sees clearly what many politicians still obscure: climate volatility is now a core variable in the security equation.

This brings us to a critical final consideration; d**oes securitizing climate change lead to more robust action, or does it distort the response?** Framing it as a national security issue can certainly mobilize political will and resources in ways that abstract environmental appeals often fail to do. It commands the attention of cabinets and commands. However, this

approach carries a grave risk: that it promotes militarized, zero-sum and insular solutions, fortress borders, resource hoarding and green-tech rivalry, over the imperative for **global cooperation, equity and just transition**.

The challenge this book lays bare is not merely to acknowledge climate change as a security threat, but to decide what kind of security we seek. Is it the security of bunkers and borders, or the security of resilience, shared resources, and collective human dignity? Understanding climate change as a threat multiplier is the essential first step. The next and more difficult step is ensuring that this knowledge drives not merely national fortification but a reinvigorated commitment to international stability and cooperation. Our future security, in the most holistic sense depends on which path we choose.

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## The thinner lines of colder wars

The Arctic is no longer the world's frozen afterthought. It is becoming a test case for how great-power rivalry behaves when geography itself is melting. What was once a white buffer, hostile to commerce, hostile to armies, hostile even to imagination, is turning into a navigable, resource-rich and strategically legible space. NATO, an alliance designed for the plains of Germany and the passes of Turkey, now finds itself thinking about icebreakers, undersea cables, satellite coverage at high latitudes and the politics of indigenous communities. Climate change has not merely altered the scenery; it has rewritten the rulebook.

For decades the Arctic enjoyed a reputation as a "zone of low tension." Even during the chilliest years of the Cold War, the region remained largely insulated from confrontation. Geography helped. So did neglect. But melting sea ice, retreating at roughly 13% per decade in late summer, has transformed the Arctic Ocean from a defensive moat into a potential maritime corridor. New shipping routes shorten the distance between Asia and Europe by thousands of kilometres. Energy reserves once trapped under ice are becoming technically and economically accessible. Fish stocks are migrating north. So are the ambitions of states.

NATO's recalibration has been swift, if not yet fully coherent. Finland and Sweden's accession turned the alliance into a near-Arctic club overnight, stretching its northern frontier by more than 1,300 kilometres of new border with Russia. Norway, long the alliance's lonely polar sentinel, now has company. The High North has moved from the periphery of NATO's map to its margins in bold ink.

The immediate driver is Russia. Moscow has always been an Arctic power by geography and temperament. But over the past decade it has treated the region less as a scientific preserve and more as

a strategic bastion. Old Soviet-era bases have been refurbished; new airfields and radar stations have appeared along the Northern Sea Route. Hypersonic missile tests have been conducted over polar waters. Nuclear-powered icebreakers, more numerous than the rest of the world's combined, are both commercial tools and floating symbols of sovereignty.

From Russia's perspective, this is defensive housekeeping. Its second-strike nuclear deterrent depends heavily on submarines operating under Arctic ice. Protecting that sanctuary is a core national interest. From NATO's perspective, however, the same infrastructure looks suspiciously like the architecture of exclusion: the building blocks of an anti-access, area-denial zone that could bottle up allied forces and dominate new shipping lanes.

The war in Ukraine has only sharpened these anxieties. Arctic cooperation forums have withered; military-to-military contacts are frozen harder than the sea ice ever was. Exercises that once included Russian observers now simulate fighting against Russian forces. Norway hosts larger allied manoeuvres. American bombers patrol northern skies more frequently. Satellites peer downward with renewed curiosity.

Yet Russia is only half the challenge. The other half is subtler and more awkward: how to prevent the Arctic from becoming a geopolitical free-for-all precisely at the moment when it becomes usable.

The paradox is cruel. Climate change makes cooperation more necessary just as political conditions make it harder. New shipping routes require common rules on safety, search and rescue, insurance and environmental protection. Fisheries need management before overexploitation repeats the sad history of the Atlantic cod. Undersea cables and pipelines need protection from accidents and sabotage. Indigenous communities need guarantees that they will not become collateral damage in a scramble for minerals and prestige.

NATO, by design, is a military alliance, not a governance body. Its instinct is deterrence, not diplomacy. Tanks and treaties are different instruments. But in the Arctic the two are inseparable. An over-militarised posture risks turning every commercial vessel into a suspected scout and every research station into a potential listening post. Under-militarisation, meanwhile, invites faits accomplis by the most willing rule-breaker.

The alliance has begun to grope toward a middle path. Its new strategic concepts speak of "integrated deterrence" in the High North, more surveillance, better infrastructure, faster reinforcement, but fewer permanent troop deployments that might look provocative. The emphasis is on knowing what happens rather than dominating what happens.

This has practical consequences. NATO navies are investing in ice-capable vessels, not to stage amphibious assaults but to ensure presence and awareness. Air forces are upgrading radar and satellite coverage in latitudes where compasses misbehave and GPS signals weaken. Logistics planners are rediscovering the ancient military truth that cold is a weapon of its own: fuel gels, batteries die, and soldiers lose fingers faster than morale.

Still, steel and sensors alone will not stabilise the region. The Arctic's most successful institution, the Arctic Council, was deliberately designed to exclude military issues. That design now looks quaint but was once wise. It allowed rivals to cooperate on science, pollution and emergency response without tripping over ideology. Today, its work is paralysed by the wider collapse in relations with Russia.

NATO cannot replace such a forum but it can avoid actively undermining the possibility of its revival. That requires restraint, transparency about exercises, communication hotlines, predictable patrol patterns. It also requires political imagination. The alliance is good at defining enemies; it is less adept at designing shared rules for spaces where enemies must coexist.

China complicates matters further. Though not an Arctic state it calls itself a "near-Arctic" one, a geographical category previously unknown to science. Its investments in ports, research stations and icebreakers are modest compared with Russia's but its ambitions are long-term. For NATO strategists, the prospect of Sino-Russian coordination in polar waters is a future headache already faintly audible.

Yet alarmism would be as misleading as complacency. The Arctic is not destined to become the South China Sea with snow. Geography still imposes discipline. Infrastructure is sparse, distances vast, weather unforgiving. Even Russia's militarisation, while real, is constrained by budgetary limits and the demands of other fronts. A fortress built on permafrost is an expensive thing to maintain.

Moreover, all Arctic states share certain interests

that ideology does not erase, predictable shipping, stable borders, functioning ecosystems. Oil spills do not respect alliances. Neither do collapsing fish stocks. The ice, as it retreats, reveals common vulnerabilities alongside new opportunities.

The strategic task for NATO then is one of balance bordering on contradiction, to signal that the alliance will defend its members' northern territories while insisting that the region should not be defined by confrontation; to prepare for conflict without making it inevitable; to respond to Russian militarisation without turning the Arctic into a self-fulfilling prophecy of encirclement.

This will demand intellectual flexibility rare in large alliances. Some members, particularly those closer to the equator, will see Arctic spending as an eccentric luxury. Others will fear that restraint invites exploitation. Bridging these instincts will require political leadership, not just staff officers with good maps.

It will also require acknowledging that climate change is now a strategic actor. Ice loss is not merely an environmental tragedy; it is a structural shift in global politics, redistributing access, altering military geometry and compressing distances that once insulated continents from one another. NATO did

not choose this new frontier. It arrived uninvited, carried on warm currents and carbon dioxide.

In the end, the Arctic will test whether the alliance can evolve from a Cold War artefact into a manager of twenty-first-century risks. Guns will matter there but so will shipping regulations, satellite bandwidth and the trust of people who live where winter lasts most of the year. Deterrence without governance will prove brittle. Governance without deterrence will prove naive. The ice is thinning. Strategy too, must become lighter on its feet. ■

## Thirst lines

The Nile has always been more than a river; it is a calendar, a border, a god, a ledger of power. For millennia it rewarded those who mastered its rhythms and punished those who mistook abundance for entitlement. Today, as drought tightens its grip on the Horn of Africa and the eastern Mediterranean, the river is once again rewriting political arithmetic. The Grand Ethiopian Renaissance Dam (GERD), rising in concrete defiance near Sudan's border, has become the instrument through which old assumptions are being audited and in Cairo, quietly panicked over.

At the heart of the dispute lies a collision between hydrology and history. Ethiopia, source of roughly 85% of the Nile's waters via the Blue Nile, spent the twentieth century watching downstream states divide the river as if it were an inherited estate. Colonial-era treaties in 1929 and 1959 guaranteed Egypt

and Sudan near-total control, while Ethiopia, never colonised, rarely consulted, was written out of the will. GERD, Africa's largest hydroelectric project, is Addis Ababa's reply, a statement that upstream geography must finally translate into sovereign choice.

For Egypt, that statement sounds like a threat. The country is 97% desert, its population of more than 110 million crowded along a thin green ribbon. Any reduction in Nile flows, even temporary, touches nerves that run from food security to regime legitimacy. Cairo insists that GERD's filling and operation must be governed by a binding agreement that guarantees predictable water volumes. Ethiopia counters that no nation should need permission to use its own rain.

In wetter times this argument might have remained technical, the stuff of engineers and negotiators. But the climate has changed its tone. Prolonged drought across East Africa and rising evaporation rates in reservoirs have transformed theoretical risk into visible scarcity. Lake levels fluctuate more wildly. Farmers in Sudan complain of erratic irrigation. Egypt, already one of the world's most water-poor countries per capita, eyes the horizon like a nervous investor watching a volatile market.

Ethiopia insists the dam is not a weapon but a battery. GERD is designed to generate over 6,000 megawatts of electricity, enough to double national capacity and export power to neighbours. In Addis Ababa, the project is wrapped in the flag, financed largely by domestic bonds and public donations, a monument to self-reliance. To concede external control over its operations would be to puncture the myth before the turbines even spin at full speed.

Sudan, meanwhile, occupies the uncomfortable middle seat. Geography has made it both beneficiary and hostage. Properly managed, GERD could regulate floods that routinely devastate Sudanese farmland and provide cheap electricity. Poorly managed, it could leave dams downstream scrambling to cope with sudden releases or dangerously low flows. Khartoum's position has therefore oscillated with its politics: supportive during periods of alignment with Ethiopia, anxious when instability or military rule sharpened its sense of vulnerability.

The diplomatic choreography has grown stale. African Union-led talks have produced communiqués but little choreography of water itself. Egypt demands legal certainty. Ethiopia offers technical cooperation without binding constraints. Sudan asks for data in

real time, a request that seems modest until one remembers that data is power. Each rainy season becomes a deadline, each filling stage a fresh provocation.

Drought has begun to tilt the stage. Climate models suggest that while total Nile flows may not collapse, their variability will increase, longer dry spells punctuated by more intense rains. For a river system managed by twentieth-century assumptions of predictability, this is a structural shock. GERD, with its vast reservoir, could act as a buffer, smoothing extremes. Or it could amplify them, depending on who controls the tap.

Egypt argues that in an age of climate stress, unilateral infrastructure is an act of recklessness. It hints, never too subtly, that national survival is a red line. Ethiopian officials dismiss such rhetoric as melodrama designed to freeze an unjust status quo. The subtext is darker, if water security becomes existential, traditional diplomacy begins to look flimsy.

Yet war, despite its theatrical appeal to hardliners, would be strategically absurd. Airstrikes on GERD could destabilise Sudan, flood downstream communities, and invite regional condemnation. Ethiopia's allies would not remain silent; Egypt's economy, al-

ready strained by inflation and debt, would suffer capital flight. The Nile would continue to flow, but politics would calcify around new grievances.

What is more plausible and more dangerous, is a slow erosion of trust that turns every dry year into a crisis summit and every technical glitch into an accusation. The absence of a binding framework means that operational decisions at GERD will be interpreted politically, not hydrologically. A delayed water release during a drought could be cast in Cairo as strategic pressure, even if driven by rainfall charts rather than malice.

Sudan's role is pivotal. If it aligns firmly with Egypt, Ethiopia risks isolation. If it drifts toward Addis Ababa, Cairo loses its buffer and its narrative of regional consensus. Sudanese engineers understand the dam's benefits; Sudanese generals understand Egypt's leverage. The country's internal fragility ensures that its Nile policy will remain a reflection of whoever temporarily controls Khartoum.

The deeper issue is that the Nile dispute is not merely about cubic metres of water but about the transition from imperial to multipolar river politics. For a century Egypt was the unquestioned hegemon of the basin, backed first by British diplomacy, later

by American aid and Arab solidarity. Ethiopia's rise, demographic, economic, infrastructural, signals that upstream states will no longer accept downstream vetoes as natural law.

Climate change accelerates this reckoning. Scarcity exposes hierarchy. When water is plentiful, legal fictions can survive. When it is scarce, they look like privileges.

There is, in theory, a compromise elegant enough to satisfy all three capitals, a binding but flexible agreement that sets minimum release levels during droughts, guarantees data sharing, and establishes an arbitration mechanism insulated from domestic politics. Ethiopia would retain ownership, Egypt predictability, Sudan stability. Such arrangements exist elsewhere. Rivers, like markets, can be regulated without being nationalised.

In practice, pride intrudes. Ethiopia fears that signing anything "binding" reopens the colonial ledger. Egypt fears that accepting flexibility acknowledges the end of its monopoly. Sudan fears choosing the wrong patron.

Meanwhile, farmers adjust their planting cycles, cities drill deeper wells, and the Nile carries on, in-

different to communiqués. The river has outlived pharaohs, emperors, and ideologies. It will outlast this quarrel too. But societies built upon it may not find the transition painless.

The true breaking point may not come with a dramatic cut-off but with a sequence of dry years that expose how little trust exists. When reservoirs dip and electricity grids flicker, technical disagreements become moral accusations. Who wasted water? Who withheld it? Who failed to plan?

In that future, diplomacy will be judged not by the elegance of its language but by the reliability of its spreadsheets.

For now, the Nile remains a shared artery governed by separate anxieties. Ethiopia sees development delayed too long. Egypt sees survival negotiated too casually. Sudan sees both, and wonders which fear will prove contagious. Water, like power, flows downhill. But authority, increasingly, does not. ■

## Bases under siege

In the flat, watery expanse where the Chesapeake Bay meets the Atlantic there is a quietly unfolding strategic reckoning that ought to give pause not just to defence planners but to anyone interested in geopolitics. At the epicentre of this reckoning is Naval Station Norfolk, the largest naval base on the planet, a lynchpin of American maritime power that is already inundated by tides that once were the stuff of future projections. Today a full moon can swamp its entry roads and dockside infrastructure with water high enough to freeze operations and frustrate readiness. Tomorrow, if current projections hold, such flooding could occur hundreds of times a year.

The Pentagon's response to this looming crisis reads like a case study in reluctant adaptation. Climate change is no longer a fringe environmental issue on the margins of abstract policy debate. For the U.S. military, it is a material threat to critical infrastructure, to strategic mobility and to the foundational assumption that American forces can mobilise, sustain and project power from coastlines around the world. In strategic terms, this isn't just about piling more sandbags on the beaches, it is about defending the sinews of U.S. military might against the slow-motion catastrophe of rising seas.

What makes this transformation geopolitically compelling is not simply the engineering scale of the response, colossal floodwalls, elevated piers, redesigned facilities, and multi-agency resilience initiatives but the deeper shift it embodies in how the world's leading military power conceptualises risk. For decades, defence planning has been obsessed with kinetic threats: peer adversaries, nuclear arsenals, terrorist networks. Today, it must contend with a non-enemy force of nature that knows no uniform, issues no declarations of intent, yet has the potential to erode strategic advantage with inexorable persistence.

The scale of investment required to fortify coastal installations is staggering. At Norfolk alone the Navy has been forced to elevate piers at costs that can run into tens of millions of dollars apiece and to undertake restoration projects in the hundreds of millions range to replace ageing infrastructure with climate-ready equivalents. These are not stopgap fixes; they are life support systems for a base that is as vital to U.S. Atlantic strategy as any warship or aircraft squadron.

But hard infrastructure, seawalls, raised roadways, pumped barriers, is only one piece of the puzzle. The Pentagon's 2021 Climate Adaptation Plan represents a broader commitment to climate-informed decision-making that permeates everything from construction standards to supply chain resilience. In concert with academic and scientific partners, the Department of Defence (DoD) is even funding research to assess vulnerabilities across more than 1,800 installations worldwide, recognising that sea level rise is not a localised hazard but a global force reshaping geopolitics.

This new engineering frontier also embraces innovative approaches that blend traditional hard defence with ecological resilience. For example, experimen-

tal programs aim to create hybrid reef-like structures that can attenuate wave energy while promoting marine ecosystem health, a kind of living seawall that marries defence imperatives with environmental restoration.

Yet for all the ingenuity, there is a tautological truth here, you can fortify a pier, but you cannot fortify the climate. And this inherent limitation raises the stakes for decision-makers who must balance competing priorities within fixed defence budgets. Every dollar spent on climate resilience is a dollar not spent on jets, ships or cyber capabilities, at a time when strategic competition, particularly with China, shows no sign of abating.

The Pentagon's pivot to climate adaptation is not simply a matter of fiscal prudence; it is strategic necessity. Coastal flooding has already disrupted readiness at multiple installations, and projections suggest that half of all U.S. coastal bases could each face upwards of 270 flood events per year by mid-century. That kind of persistent disruption undermines the very idea of assured mobility, the ability to surge forces, maintain logistics lines and respond to contingencies across multiple theatres.

In the Indo-Pacific, climate risks compound traditional geopolitical challenges. Bases in Guam and other strategic outposts have endured powerful typhoons that inflicted billion-dollar damage and required extensive hardening to withstand future storms. These are not theoretical exercises; they are real preparations for real conditions that could otherwise degrade deterrence and complicate alliance commitments.

Moreover, the very distribution of U.S. forces, concentrated at key coastal hubs, creates strategic vulnerabilities. Parris Island in South Carolina, the Marine Corps Recruit Depot, is among those at risk of partial submersion by the end of the century, according to conservative sea-level estimates. When the physical geography of military power shifts, so too does strategic flexibility.

Yet the challenge of fortifying bases against climate change is not merely technical or strategic; it is inherently political. Despite the Pentagon's own assessments, Congressional pushback against climate-related spending has periodically threatened adaptation efforts, complicating planning and implementation. The tension between short-term political calculus and long-term strategic foresight is a recur-

ring theme in the broader climate policy arena, and the military is no exception.

Even at the local level resilience initiatives buckle under competing interests. City-level flood protection projects in places like Norfolk face resistance from neighbourhoods reluctant to accept the sitting of floodwalls, as well as from historically marginalised communities that feel excluded from planning processes. These disputes underline a central truth, climate adaptation forces uncomfortable conversations about who pays, who benefits, and who bears the residual risk.

The Pentagon's adaptation drive also illuminates a broader shift in how states perceive climate change as a security issue. The idea that environmental change could be a strategic threat, not through intentional aggression but through physical transformation, marks a subtle but profound broadening of the security concept. It also invites new forms of cooperation, from public–private partnerships to interagency collaborations with civilian climate researchers and local governments.

This broadened security lens has implications beyond U.S. shores. Allies and partners, particularly in Europe and the Asia-Pacific, face analogous challeng-

es with their own coastal installations. Shared experiences in climate adaptation could become a platform for deeper security cooperation or if mismanaged, a source of friction as states prioritise scarce resources in an era of intensifying competition.

The Pentagon's efforts to fortify coastal installations against sea-level rise and recurrent flooding reflect a sober recognition: climate change is not lurking at the edges of strategic thought, it is here, reshaping the physical and geopolitical terrain on which national power rests. This is not an act of ecological virtue, but of existential calculus. The ability to sustain fleets at sea, project land power from coastal bases, and maintain a global deterrent depends on the dry feet beneath the boots and the dry decks beneath the ships.

In that sense, the walls and berms rising at Norfolk and elsewhere are not just engineering projects; they are symbols of a broader strategic paradox. The United States must contend simultaneously with the deep uncertainties of climate change and the zero-sum certainties of geopolitical rivalry. In safeguarding its bases against the rising tide, the Pentagon is, paradoxically, fortifying not only concrete and steel but the very idea that a superpower can endure in a world transformed by nature's slow, inexorable forces. ■

## Dust begets dust

The Sahel is not collapsing in a single cinematic fall; it is unravelling, thread by thread, grain by grain. What looks from afar like an explosion of jihadist violence in Mali and Niger is up close a quieter story that begins with soil turning to powder, millet failing to ripen and wells receding a few handbreadths each year. The gunmen arrive last. Hunger arrives first.

For decades the Sahel has lived with drought. What has changed is its rhythm. Rains now come late, if at all, or arrive in short, violent bursts that wash away seeds instead of nourishing them. Desertification is not merely the Sahara marching south in neat lines; it is the thinning of grass, the death of shallow-rooted trees and the slow collapse of land that once absorbed shock. Farmers who once harvested enough

to feed their families and sell a surplus now gamble each season against an increasingly stacked deck. When they lose, they do not merely grow poorer. They lose their reason to stay.

Crop failure does not produce rebellion by itself. It produces movement. A farmer whose granary is empty can borrow, then sell livestock, then mortgage land. Eventually he loads his family onto a motorbike or the back of a truck and leaves. Across central Mali and western Niger, villages have shrunk into hamlets, and hamlets into memory. The exodus is not dramatic. It is a slow draining of youth, muscle, and ambition toward towns already straining to absorb them.

This rural depopulation hollows out more than the economy. It dissolves social glue. Elders lose authority when they can no longer distribute food or resolve disputes over land that no longer yields crops. Communal labour systems wither when half the young men are gone. Mosques fill, but granaries do not. In places where lineage and land once defined belonging, uncertainty becomes the dominant currency.

Those who remain face sharper competition over what little is left. Pastoralists push their herds further south in search of grass, crossing fields that farmers still consider theirs by ancestral right. Wells become

strategic assets. A broken fence or trampled crop, once a solvable quarrel, becomes a spark in dry tinder. Ethnic identities harden as livelihoods shrink. Fulani herders, Dogon farmers, Tuareg nomads, Songhai traders, labels that once described ways of life now double as accusations.

Governments, distant and distrusted, respond with soldiers rather than surveyors, rifles rather than irrigation. Security forces, underpaid and poorly trained, tend to see communities through the blunt lens of suspicion. Entire villages are labelled collaborators. Arrests are arbitrary. Livestock is seized. Each abuse is small, but cumulative, a tax on dignity that compounds faster than any interest rate.

Into this landscape step the jihadists, who understand something the state often does not: that order, even harsh order, beats chaos when hunger stalks the land. They do not begin with sermons about the caliphate. They begin with disputes over wells, stolen cattle, unpaid bride prices. They offer arbitration where courts do not reach, loans where banks never existed, protection where the police extort.

In central Mali, armed groups have positioned themselves as rough judges between farmers and herders, issuing rulings that favour those who pledge

loyalty. In Niger's Tillabéri region, militants collect "zakat" with the efficiency of tax officials, redistributing part of it to families whose sons have joined their ranks. To a young man with no field to inherit and no job to pursue, a Kalashnikov comes with food, status, and a monthly allowance. Ideology is optional; survival is not.

The path from dry soil to armed rebellion is indirect but relentless. Desertification reduces harvests. Failed harvests drive migration. Migration erodes social hierarchies and inflames competition. Competition turns violent in the absence of credible mediation. Violence creates demand for armed protectors. Armed protectors become insurgents. At each stage, the problem shifts shape, but never truly disappears.

Cities, meanwhile, swell like sponges dropped into dirty water. Bamako and Niamey absorb tens of thousands who arrive with little more than debts and disappointment. Informal settlements expand along dusty outskirts where electricity flickers and water is rationed. Urban unemployment becomes rural despair in a different costume. Some young men drift into petty crime. Others listen when recruiters speak of dignity restored through jihad, of a world in which their suffering has meaning and enemies have names.

Foreign governments, observing this arc, often misread the middle chapters. They see fighters crossing borders and conclude that the story is about ideology or smuggling routes. They respond with drones, training missions, and conferences. These tools address the final act, not the opening scenes. Killing a commander does not refill a well. Burning a camp does not make rain fall on parched fields.

The tragedy is that the Sahel's ecological decline is neither sudden nor mysterious. Satellite images have tracked vegetation loss for decades. Agronomists have warned of soil exhaustion, overgrazing, and the deadly combination of population growth with shrinking arable land. Yet adaptation, better water management, drought-resistant crops, local conflict-resolution institutions, has lagged behind the pace of decay. Development projects arrive in fragments, security operations in battalions.

Mali and Niger illustrate the danger of confusing cause and consequence. Militancy is treated as a disease, when it is often a symptom. It thrives where the state is absent not only militarily but economically and morally. A young herder who joins an armed group is rarely chasing paradise; he is fleeing irrelevance.

None of this absolves the militants of brutality. They massacre civilians, recruit children, enforce obedience with terror. But moral clarity does not negate strategic clarity. Movements that feed on desperation cannot be starved out by bullets alone when the land itself is failing.

Climate change acts as an accelerant. What was once a lean decade becomes a permanent emergency. Traditional safety nets, grain reserves, seasonal migration, clan solidarity, were designed for hardship, not for a new normal in which hardship is constant. When crisis becomes routine, radical alternatives gain appeal.

The Sahel's spiral is therefore not merely environmental, or ethnic, or ideological. It is structural. Break one link and the chain still holds. Break several, and the story changes. Reversing desertification is slow and expensive. But stabilising rural livelihoods, investing in water, empowering local mediators, and restraining predatory security forces would weaken the insurgents more effectively than another convoy of armoured vehicles.

The region's future will not be decided solely in the desert, nor solely on the battlefield. It will be shaped in the quiet calculations of families wonder-

ing whether to plant or to leave, to negotiate or to fight, to trust the state or the men who promise swift justice at gunpoint.

If the land continues to empty, so will the space for moderation. Dust, after all, does not merely cover what once was fertile. It settles into lungs, into politics, into the imagination of the young. From it grow not crops, but grievances. And grievances, in the Sahel, have learned to carry guns. ■

## Climate clashes
## The PLA's new strategic domain

It used to be said that armies prepare for wars, not for the weather. China's People's Liberation Army (PLA) appears to disagree. In the past decade climate change has crept from the footnotes of Chinese defence white papers into operational planning, force structure and strategic imagination. Floods, droughts, melting glaciers and typhoons are no longer treated merely as humanitarian inconveniences. They are increasingly framed as accelerants of disorder and therefore as matters of national security.

This is not the green idealism of carbon-neutral barracks. It is something colder, climate as a battlespace, a trigger for instability and an opportunity for power projection.

Nowhere is this clearer than on the Tibetan plateau, the roof of the world and the source of Asia's great rivers. The Yangtze, Yellow, Mekong, Salween, Brahmaputra and Indus all begin in territory controlled by Beijing. As Himalayan glaciers retreat and monsoon patterns wobble, these rivers become strategic assets rather than geographical facts.

For decades China treated Tibet primarily as a political problem and a logistical challenge. Today it is also a hydrological fortress. The PLA has quietly expanded infrastructure across the plateau: airfields capable of heavy transport, hardened roads that can take armoured vehicles, satellite-linked communications hubs and high-altitude logistics depots. Officially these are for "border defence and disaster relief". Unofficially, they ensure that whoever controls the headwaters controls the tap.

India worries about this obsessively, and not without reason. The Doklam standoff of 2017 and the deadly Galwan clash of 2020 were not simply about lines on a map. They were about access, altitude and the ability to dominate a fragile ecological system where small engineering works, dams, diversions, reservoirs, can have continental consequences.

The PLA's Western Theatre Command now trains for what Chinese strategists call "resource-security contingencies": scenarios in which climate stress fuels unrest in downstream countries, triggers refugee flows or tempts rivals to interfere with China's control of water infrastructure. In such planning documents, rivers appear less as natural features than as supply chains to be defended.

At home, climate change is already rewriting the PLA's daily workload. Flooding along the Yangtze basin, heatwaves in central China, desertification in the north-west and increasingly violent typhoons on the southern coast have turned soldiers into first responders.

In theory, this is benevolent. In practice, it is politically useful. The PLA's disaster-response units are among the most technologically sophisticated in the force. They deploy drones to map submerged villages, AI systems to predict levee collapses and facial-recognition cameras to identify displaced citizens. Portable 5G base stations accompany rescue teams, restoring not only communications but also surveillance. Relief camps are wired almost as tightly as police stations.

This fusion of humanitarian aid and social control is no accident. Beijing learned from the chaos of the 2008 Sichuan earthquake that disasters create information vacuums, dangerous things in authoritarian systems. Today, climate emergencies are treated as moments of both physical and narrative vulnerability. The PLA is tasked not merely with saving lives, but with ensuring that disorder does not metastasise into dissent.

The result is a new military genre: the soldier as climate warden. He carries sandbags and sensors, rifles and routers. His mission is to stabilise terrain and population simultaneously.

Beyond China's borders, the PLA's climate thinking becomes more overtly geopolitical. Consider the South China Sea, where rising waters gnaw at low-lying features and intensifying storms batter artificial islands. The PLA Navy and Air Force have invested heavily in reinforcing runways, ports and radar stations against storm surge and erosion. Concrete is poured not just to deter rivals, but to outlast the tide.

Or take Africa, where Chinese engineers build dams, railways and ports while Chinese troops staff UN peacekeeping missions. Climate stress is expected to magnify ethnic conflict, weaken governments

and disrupt supply chains for minerals vital to China's clean-energy transition. PLA planners speak of "environmental instability belts" regions where drought and heat make political collapse more likely, and where Chinese citizens and investments may require evacuation or protection.

This logic underpins the growth of China's overseas military footprint. The base in Djibouti, at the mouth of the Red Sea, is marketed as a logistics hub for anti-piracy and humanitarian operations. It is also well positioned to respond to climate-driven crises in East Africa and the Middle East, from famine-induced unrest to mass displacement along the Nile basin.

In effect, climate change provides a morally palatable justification for strategic expansion. Warships sail as floating relief centres. Marines land as medics. And flags follow.

The PLA's academies increasingly teach climate modelling alongside traditional operational art. Cadets study not only enemy orders of battle but also rainfall projections and glacier-melt curves. War games include scenarios in which typhoons cripple ports, drought empties reservoirs or heatwaves disable power grids.

One recurring theme is the "compound crisis": a natural disaster coinciding with political unrest or foreign interference. Imagine, for instance, catastrophic flooding in southern China disrupting manufacturing while protests erupt over food shortages, all as tensions with Taiwan flare. In such a case, the PLA must juggle internal security, disaster relief and external deterrence at once.

This is not paranoia. Climate change tends to stack crises rather than isolate them. Infrastructure fails when societies are already strained. The PLA, ever a student of historical collapse, takes this seriously.

Western militaries speak of resilience in terms of redundancy and decentralisation. China prefers visibility. Sensors, satellites and cameras are deployed across vulnerable regions, from drought-prone Xinjiang to typhoon-exposed Guangdong. The stated goal is early warning. The implicit one is behavioural mapping: knowing who moves, where and why when systems break.

During floods in Henan province in 2021, authorities used mobile-phone data to track population movements and identify "abnormal gatherings". Drones monitored crowds waiting for supplies. Online speech was filtered to suppress rumours. The

PLA provided muscle and machinery, but the nervous system belonged to the surveillance state.

Climate change, in this view, is not only a physical threat but a data problem. Chaos can be mitigated if it is measurable. Anger can be contained if it is predictable.

This approach contrasts sharply with liberal assumptions that transparency breeds trust. Beijing's wager is that omniscience breeds obedience.

All of this points to an uncomfortable conclusion, climate adaptation is becoming militarised. Not just in China, but globally. Yet the PLA's scale and political role make its version distinctive. It is not merely preparing to fight wars made worse by climate change. It is positioning itself to manage societies reshaped by it.

Control of water, dominance of disaster narratives, protection of overseas assets, and the embedding of surveillance into relief efforts together form a doctrine of environmental security with Chinese characteristics. It blurs the line between soldier and policeman, humanitarian and strategist, engineer and intelligence officer.

Rivals will respond in kind. India fortifies its own Himalayan infrastructure. America's Pentagon maps climate risk to bases and allies. Smaller states worry that their floods and famines will become excuses for great-power "assistance".

The danger is subtle. Climate change does not just warm the planet; it thickens the fog in which power is exercised. When every drought is a potential insurgency and every storm a test of legitimacy, armies gain excuses to expand their remit.

China's generals understand this. They do not speak of saving the world. They speak of maintaining stability, protecting resources and preventing chaos. In the language of the PLA, climate is not destiny, but it is a domain, as real as land, sea, air, space or cyberspace.

Wars may still be fought with missiles and ships. But the strategic terrain of the 21st century is increasingly shaped by rivers that shrink, coasts that erode and skies that refuse to behave. China is arming itself accordingly, one dam, one drone and one disaster drill at a time.

The weather, it seems, has joined the order of battle. ■

## When the tide becomes a border

By the middle of this century two countries may exist more vividly in law books than on maps. Kiribati and Tuvalu, coral atolls stitched together by reef and memory, are being unstitched by the sea. What looks from afar like a slow environmental tragedy is, up close, a geopolitical experiment, what happens to sovereignty when territory dissolves, and to borders when those fleeing have nowhere else to belong?

The Pacific is often described as tranquil. It is anything but. It is a laboratory where climate change tests the sturdiness of concepts invented for a stable planet: borders that do not float, citizenship tied to soil, the idea that a state is something you can point to.

For Kiribati and Tuvalu, the rising sea is not a metaphor but an administrative problem. Saltwater floods taro pits and poisons groundwater. Storm surges erase cemeteries, then roads, then the assumption that tomorrow's high tide will resemble today's. The land is thin to begin with rarely more than two metres above the water. There is no high ground to retreat to. The nation is the shoreline.

Yet both governments insist they are not vanishing. They are adapting. They are sovereign. They will endure. This is not bravado. It is legal strategy.

International law was drafted by people who assumed geography was durable. The Montevideo Convention of 1933 defines a state by four criteria: a permanent population, a defined territory, a government, and the capacity to enter into relations with other states. Climate change quietly mocks this list.

Population? Yes, for now. Government? Certainly. Diplomatic capacity? Kiribati and Tuvalu have ambassadors and UN missions. But territory, defined territory, is becoming a seasonal suggestion.

If an atoll disappears beneath the waves, does the state vanish with it? Or does sovereignty float, like an

abandoned buoy, anchored to memory and paperwork?

The question is no longer academic. Kiribati has already purchased land in Fiji, officially for food security. Tuvalu is building a "digital nation," archiving its culture, maps, and records in the cloud, as if sovereignty might be backed up alongside family photos.

Their lawyers argue that statehood should persist even if territory becomes uninhabitable or submerged. Maritime boundaries, they say, should remain fixed. Exclusive economic zones, vast, fish-rich waters that dwarf the land itself, should not dissolve just because the coastline does.

It is an argument for post-territorial sovereignty, a country as a legal person, not a physical place. Many vulnerable states quietly support this idea. Many powerful ones quietly do not.

For large countries, recognising a landless state is not an act of compassion but a precedent. If borders become detached from land, what else becomes negotiable?

Maritime law is particularly sensitive. Kiribati's

waters are economically significant. So are Tuvalu's. If their land disappears but their ocean rights remain, neighbouring states lose potential access to fisheries and seabed minerals. Climate justice collides with strategic appetite.

Then there is the human problem. If a country becomes uninhabitable, its people must go somewhere. Not as tourists. Not as seasonal workers. As a nation in motion.

Regional powers, Australia, New Zealand, and beyond, prefer to discuss "mobility pathways," not mass migration. The language is bureaucratic and careful. Training visas. Labour schemes. Gradual integration. Anything but the phrase "collective resettlement."

The fear is not numbers. Tuvalu has around 11,000 citizens. Kiribati, about 120,000. These are not demographic earthquakes. The fear is responsibility.

Granting mass migration rights to an entire people would acknowledge, implicitly that climate change can destroy states and that those least responsible for it may present a bill to those who emitted most. It would also create a template. The Maldives is watching. Parts of the Caribbean are watching. Delta regions are watching.

One open door becomes a corridor.

Pacific leaders speak carefully, but their frustration leaks through diplomatic syntax. They do not want charity. They want continuity. They want their passports to mean something even when their airports are underwater. They want their children to be Kiribati citizens, not stateless labourers with good English and sad stories.

The preferred model is "migration with dignity": people move before catastrophe, with skills, legal status, and community intact. Not as refugees, but as citizens relocating their country in instalments.

It is a humane vision. It is also politically inconvenient. Host countries like to control immigration atom by atom: one visa, one worker, one contract. A whole nation arriving with collective claims to culture, political representation, and legal identity is harder to process. It does not fit into existing forms.

Refugee law does not apply. Climate is not a recognised ground for asylum. The result is a legal limbo where everyone agrees the situation is tragic, and nobody agrees who must act first.

Tuvalu's digital nation project is often described as futuristic. In truth, it is archival. A desperate act of record-keeping in the face of erasure. Streets scanned. Government buildings modelled. Songs recorded. It is Pompeii in advance.

There is something noble in the effort, and something quietly devastating. A country that must prove its existence through servers hosted abroad has already lost an argument with physics.

Still, symbolism matters in geopolitics. A flag that flies in cyberspace still flies at the United Nations. A seat in the General Assembly still carries a vote. A legal personality can sign treaties, sue polluters, and demand compensation.

This is where the struggle sharpens: not just for survival, but for leverage. If Kiribati and Tuvalu remain states, even without dry land, they remain claimants. Against fossil fuel companies. Against high-emission countries. Against a system that priced carbon cheaply and islands at zero. If they become "former countries," they become anecdotes.

There is a darker possibility. That sovereignty survives on paper while people disperse in practice. Citizens of a submerged state could be scattered across

continents, linked by documents but not by daily life. Elections conducted online. Cabinets meeting in borrowed offices. A nation reduced to a legal fiction with a diaspora and a fishing zone.

It would be a new category in world politics: the deterritorialised state. Powerful countries may find this outcome convenient. It preserves order. It avoids rewriting migration law. It keeps borders intact, even as the ocean ignores them.

But it turns climate change into an instrument of quiet dispossession. Territory lost. Communities atomised. Culture preserved as data.

The border, in this scenario, does not open. It moves inward, shrinking the definition of who belongs where, until belonging becomes portable but thin.

Kiribati and Tuvalu are small, but their problem is large enough to bend international law. If the world cannot accommodate the relocation of a few tens of thousands of people with centuries-old identities and clear legal status, it will not cope gracefully with the millions to come from less tidy places: drowned deltas, overheated cities, exhausted farmland.

Climate migration is often framed as a future crisis. In the Pacific, it is already an administrative routine conducted in slow motion. Every flooded well is a policy memo. Every lost coconut grove, a footnote in a future court case.

The argument these island nations are making is radical only because the old assumptions were lazy, that land is permanent, that borders are natural, that victims should be grateful. They are asking for something simpler. To remain countries even if their countries become water. To move without vanishing. To trade coral for continuity.

The sea is rising. The paperwork is rising more slowly. The race between them will decide whether climate change merely redraws coastlines or quietly edits nations out of existence.

And whether sovereignty, like an atoll, is something the modern world is willing to watch sink, as long as it does so politely and far from shore. ■

## The green vs. guns dilemma

The world claims to be racing toward a cleaner future. Yet the language increasingly used to describe that race is not borrowed from science or solidarity, but from war rooms. We speak of "supply chain security," "strategic autonomy," and "resource dominance." Climate change, once framed as a shared planetary emergency, is being quietly recast as a theatre of competition. The green transition is acquiring a khaki tint.

This shift matters, not merely because words shape policy but because the logic of security transforms what climate action is for, who it serves, and whom it sacrifices. When decarbonisation is treated as a geopolitical contest, the atmosphere becomes secondary to advantage. The planet becomes collateral.

At the centre of this transformation sits a deceptively technical phrase, *critical minerals*. Lithium, cobalt, nickel, rare earths, once obscure geological footnotes, are now spoken of with the reverence once reserved for oil. Governments publish lists, companies hoard contracts, generals study maps of deserts and mountain ranges that suddenly matter a great deal.

There is nothing inherently sinister about wanting reliable access to materials essential for batteries, wind turbines, and solar panels. But history offers a grim tutorial on what happens when strategic resources are securitised. The scramble for rubber, oil, and uranium did not end well for those who lived where these resources happened to lie.

We are told that this time will be different. That green technology is emancipatory. That electric cars and grid-scale batteries will flatten old hierarchies. Yet the early evidence suggests an all-too-familiar pattern, extraction in the Global South, profits and patents in the Global North and instability carefully rebranded as "risk."

Consider the new diplomatic choreography. African and Latin American states are courted less as partners in planetary repair than as vaults to be

unlocked. Contracts are signed in hotel conference rooms, guarded by talk of development while hedged with clauses that ensure value travels north. Mining concessions expand, environmental standards shrink, and communities are invited to be grateful for jobs that arrive alongside poisoned water.

It is colonialism with better branding. Instead of flags, there are feasibility studies. Instead of gunboats, investment guarantees. Instead of missionaries, sustainability consultants.

The securitisation of climate policy does not stop at extraction. It reshapes how nations imagine survival itself. Climate adaptation, once discussed in terms of shared resilience and global responsibility, is drifting toward something colder: national fortification.

Rising seas are no longer only humanitarian disasters; they are "migration threats." Droughts are less tragedies than "instability multipliers." Heatwaves become "security stressors." In this framing, the vulnerable are not neighbours to be assisted but variables to be managed.

Walls, both physical and bureaucratic, follow naturally.

Europe invests billions in border surveillance while preaching climate leadership. The United States debates carbon neutrality alongside new patrol technologies for its southern frontier. Australia hardens its maritime boundaries as Pacific islands quietly calculate their remaining decades of habitability.

Adaptation, in this worldview, is not about helping Bangladesh survive flooding or the Sahel endure heat. It is about ensuring that Bangladeshis and Sahelians do not arrive at Heathrow, Lampedusa, or Texas.

The moral geometry is unmistakable: protection for some, precarity for others. Climate change becomes not a shared injustice but a filter, sorting humanity into the insulated and the exposed.

Security frameworks excel at simplifying complex realities into enemies, threats, and assets. Climate change resists such reduction. It has no ideology to deter, no capital to capture, no army to defeat. Yet when shoehorned into the language of national defence, it becomes something manageable, even comforting: another problem for which one can buy hardware.

Missiles, after all, are easier than multilateral empathy.

This mindset also distorts priorities. Resources that could finance resilient infrastructure in fragile states are diverted into domestic stockpiles of lithium or strategic battery reserves. Diplomatic energy that could build climate finance mechanisms is spent negotiating exclusive supply corridors. The politics of scarcity replaces the economics of sufficiency.

Ironically, this security obsession may undermine the very transition it claims to protect.

Mineral nationalism fragments markets, raises prices, and slows deployment of clean technology. Hoarding creates bottlenecks. Rival blocs duplicate supply chains at enormous cost, burning diplomatic capital in the process. The planet, indifferent to flags, continues to warm.

Meanwhile, resentment grows in regions asked to dig deeper while remaining poor. Political backlash follows. Mines are sabotaged. Contracts are renegotiated. Populists discover that "green imperialism" is an effective slogan. Stability, the holy grail of security planners, becomes more elusive, not less.

There is another danger, quieter but no less corrosive, securitisation narrows imagination. If climate policy is about dominance, then cooperation looks naïve. If adaptation is about defence, then solidarity looks inefficient. If minerals are weapons, then sharing them is foolish.

The result is a world that decarbonises slowly, unevenly and bitterly. None of this is inevitable. Minerals can be governed as commons rather than trophies. Technology transfer can be treated as insurance for civilisation, not charity. Adaptation can prioritise dignity over deterrence. Borders can be managed without becoming moral fortresses.

But such alternatives require resisting a powerful temptation: to believe that every crisis is best solved by thinking like a general.

Climate change is not an invading army. It cannot be bombed, sanctioned, or deterred. It demands something deeply unfashionable in geopolitics, trust, redistribution, patience, and restraint.

These are weak currencies in a world addicted to leverage. The tragedy is that the green transition was once sold as an opportunity to escape the logic of fossil-fuel geopolitics, the wars, the petrostates, the

pipeline politics. Instead, we seem determined to recreate them with shinier tools.

The weapons will be quieter. The rhetoric more polite. The contracts thicker. But the structure will feel familiar to anyone who has studied the past century, resources flow upward, risk flows downward, and morality is outsourced to press releases.

The atmosphere will not care whether the carbon came from a Chinese factory or an American one. Floodwaters will not pause at customs. Drought will not respect military alliances.

Yet we continue to plan as if the climate were a rival state, rather than a shared condition. The green transition can still be a project of collective survival. Or it can become another chapter in the long history of powerful nations securing their future by exporting uncertainty to everyone else.

One path requires courage. The other requires only spreadsheets and soldiers. So far, the soldiers are winning. ■

# Compounding Threats

**Brea Willis**

Cover Painting
Henri Rousseau The Sleeping Gypsy, 1897

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# COMPOUNDING THREATS

THE GEOPOLITICS OF CLIMATE CHANGE